In the Claims

Applicant has submitted a new complete claim set showing marked up claims with insertions indicated by underlining and deletions indicated by strikeouts and/or double bracketing.

Please cancel claims 1-25 and 32-38 without prejudice or disclaimer.

1.-25. (Canceled)

26. (Original) A method for compositional analysis of chemical units of a sample polymer, comprising:

(A) applying an experimental constraint to the sample polymer to modify the sample polymer,

(B) detecting a property of the modified sample polymer;

(C) comparing the modified sample polymer to a reference database of polymers of identical size as the polymer, wherein the polymers of the reference database have also been subjected to the same experimental constraint as the sample polymer, wherein the comparison provides a compositional analysis of the sample polymer.

27. (Original) The method of claim 26, wherein the step of detection involves capillary electrophoresis.

28. (Original) The method of claim 26, wherein the experimental constraint applied to the polymer involves complete degradation of the polymer into individual chemical units, and wherein the compositional analysis reveals the number and type of units within the polymer.

29. (Original) The method of claim 26, wherein the step of detection involves matrix assisted laser desorption ionization mass spectrometry.

30. (Original) The method of claim 29, wherein the experimental constraint applied to the polymer involves incomplete enzymatic digestion of the polymer and wherein steps (A), (B), and(C) are repeated until the number of polymers within the reference database falls below a predetermined threshold, and wherein the compositional analysis reveals the identity of a sequence of chemical units of the polymer.

31. (Original) The method of claim 24, wherein the reference database includes identifiers corresponding to chemical units of a plurality of polymers, each of the identifiers including a field storing a value corresponding to a property of the corresponding chemical unit.

32.-38. (Canceled)